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WITNESS my hand this  
Twenty-second day of September 2000

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*Appn. No. : 09/666,482*  
*Filed: September 20, 2000*  
*Inv.: William Young, ET. AL.*  
*Title: SMART CARD systems AND*  
*Electronic Ticketing Methods*

**ORIGINAL**

**AUSTRALIA**

**Patents Act 1990**

**PROVISIONAL SPECIFICATION FOR THE INVENTION ENTITLED:**

A System for Smart Card Electronic Ticketing

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This invention is best described in the following statement:

# A SYSTEM FOR SMART CARD ELECTRONIC TICKETING

## Technical Field of the Invention

This invention relates to obtaining information about seats, and booking seats  
5 through electronic commerce.

## Background Art

In recent years, the rise of the Internet, automated telephone services, and other  
information services has been phenomenal. Information about every conceivable activity  
10 is available in large quantities.

The popularity and convenience of "shopping from home" has also increased.  
While home shopping has been available for many years in the form of "shopping  
channels" on broadcast or cable television, the presentation of information in such an  
environment is static, and cannot be tailored to the user's needs. The viewer is not able to  
15 return to a previous section of the program in order to review a demonstration of a  
particular feature. A viewer may only be interested in a particular aspect of the product,  
but there is no way of choosing which aspects of the product are to be reviewed. In  
addition, it is difficult for the user to increase the speed of the transaction, since the  
information which is vital for the transaction (eg price, terms, etc) is often not available  
20 until late in the presentation of the product or service.

The rise of the Internet has solved some of these problems. Users are able to  
interact with on-line catalogues or shopping malls in a variety of ways. The Internet  
allows for a much less restricted and permits a more user guided electronic shopping  
experience. However, with the meteoric rise of the Internet, another problem has  
25 occurred. With so many sites on the Internet, and so much information available, it is  
easy to become lost. If the location of a web or page (a URL or Universal Resource  
Locator) is lost, it is unlikely that a user will "stumble across" it again. The bookmarking  
facilities available with some web browsers have aided the management of URLs.

However, these bookmarking facilities usually rely on textual information for identification of the URL. This can be inconvenient, since a user may not clearly remember the text associated with the page, but instead recall an overall "look" of the page, or recall the content of the page.

5 Another problem with electronic commerce sites on the Internet is that the navigation may not be obvious or intuitive. Also, this navigation cannot often be tailored to the needs of the individual. If an individual is interested only in certain aspects of the product or service, it can be quite frustrating to be forced to travel through various layers of web pages in order to reach the few details which are of significant interest. Access to  
10 Internet sites, particularly those from overseas, can be particularly slow, especially at times of peak usage. Access will also be slower if the site contains a lot of large graphics files, such as may be the case for an on-line catalogue. Thus, the use of data intensive (or "rich") types such as video is, in many cases, practically limited by the amount of bandwidth available to the typical user.

15 If a purchase is to be made via these web sites, it is often necessary to enter credit card details and identification details each time a purchase is made, for security purposes. This can be quite time consuming. Finally, in order to purchase goods via the Internet, a user must have access to a computer, and have an account with an Internet Service Provider (ISP). When the user desires to use an on-line ordering system on the Internet,  
20 he or she must go through the steps of turning on the computer, and connecting to the ISP, before any shopping can commence.

Digital television presents the opportunity for a rich interaction with the data and programs stored on a server, through the large bandwidth available to the digital television viewer. The set top box, necessary for decoding the digital television signals, is  
25 also able to control some interaction with the content shown on the digital television. By using a combination of set top box software, server side software, and the network, it is possible to provide many applications that can be used in the home, and which do not

require expensive extra equipment. For example, systems for banking, weather updates, and stock market information are being developed for the digital TV market.

However, such information services, while useful, are not always easy to use. The interaction with the information service is limited, since the digital TV remote control was designed to perform a limited number of tasks, interaction with information services using a standard remote control can be complex, and nonintuitive.

Smart cards have been used in electronic commerce for some time. Smart cards are capable of providing secure encryption of sensitive data, and of providing authentication of electronic transactions. Many other methods are also used for electronic payment, such as digital certificates, and digital cash. A number of these electronic payment techniques use a form of digital certificate which authenticates the user to a vendor, or a third party, where the third party is responsible for controlling the transaction between the vendor and the user. Once authenticated, the funds for the transaction are able to be received from a nominated bank account. In other methods, the digital certificate authenticates not the user, but a digital representation of funds, which is encapsulated by the digital certificate. Still other methods use smart cards to carry a representation of funds in digital form, known as digital cash or digital wallets.

### **Disclosure of the Invention**

In accordance with a first aspect of the present invention, there is disclosed a smart card for electronic ticketing, said smart card comprising:

- a substrate;

- an electronic memory located in, or on, said substrate;

- a first indicium or a first set of indicia on said substrate representing a venue to which tickets are to be sold;

- a first data cache stored in said memory and representing displayable information regarding said venue;

a second indicium or a second set of indicia on said substrate representing time varying booking information;

a second data cache stored in said memory and pointing to a remote location at which current values of said booking information are stored;

5 a third indicium or a third set of indicia on said substrate representing a booking transaction; and

a third data cache stored in said memory and comprising transaction enabling data.

In accordance with a second aspect of the present invention there is disclosed a system for smart card electronic ticketing, said system comprising:

10 a smart card as defined above;

a vendor computer having a base memory in which is stored booking information regarding said venue to which tickets are sold by a vendor, updating means to update said booking information during the progress of sales, and a vendor communications link; and

a purchaser computer having a display, a smart card reader, and a purchaser  
15 communications link which can communicate with said vendor communication link.

In accordance with a third aspect of the present invention there is disclosed a method for smart card electronic ticketing, said method comprising the steps of:

a vendor preparing at least one smart card as defined above;

distributing to a purchaser one of said smart cards;

20 said vendor and purchaser together forming the system as defined above;

said purchaser entering said smart card into the card reader of said purchaser computer and activating said first indicium or set of indicia to thereby display on said purchaser display a representation of said venue;

said purchaser activating said second indicium or said second set of indicia to have  
25 said purchaser computer call and download from said vendor computer over said communications link current booking information regarding said venue and display same on said purchaser display; and

said purchaser activating said third indicium or said third set of indicia to electronically conclude a ticket booking transaction with said vendor, update the booking information in said base memory, and store the transacted ticket information in said smart card electronic memory.

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### **Brief Description of the Drawings**

A number of preferred form of the present invention will now be described with reference to the drawings in which:

Fig. 1 is a schematic view of the computer system 100 operated by a vendor of smart cards;

10

Fig. 2 is a similar view of a corresponding computer system 200 operated by a purchaser of smart cards;

Fig. 3 is a view of the front face of a smart card able to be operated with the systems of Figs. 1 and 2;

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Fig. 4 is a view of the front face of a smart card of the second embodiment;

Fig. 5 is a front view of the smart card of the third embodiment;

Fig. 6 is a schematic block diagram of the general purpose computer system 100 of the vendor, to which the general purpose computer system 200 of the purchaser is entirely analogous.

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### **Detailed Description Including Best Mode**

The sale of tickets requires a vendor and a number of purchasers. Generally the purchasers will be members of the general public and the vendors will be the organisers of, or promoters of, sporting events, restaurants, travel groups, or any activity which requires a ticket or reservation to be made prior to undertaking the activity.

25

Illustrated in Fig. 1 is the computer system 100 operated by the vendor. This takes the form of a computer module 101 to which is connected a keyboard 102, a smart card reader 10, a display 114, a printer 115 and a camera 117 which can be either a digital still

camera or a digital video camera. The computer system 100 is also connected to a communications link 16 which can take various forms as will be described in more detail hereafter in relation to Fig. 6.

Similarly, in Fig. 2 is schematically illustrated the computer system 200 available to the purchaser which includes a computer module 201, a keyboard 202, a display 214 and a communications link 216. Also connected to the computer module 201 is another smart card reader 10.

In the first embodiment illustrated in Fig. 3, the smart card 1 is intended to be used to sell tickets to a sporting stadium. Located on the smart card 1 is a stadium indicium 2, a view indicium 3, a number of people indicium 4, an event indicium 5, a "book the seat" indicium 6 and scroll indicia 7.

As is well known to those skilled in the art, the smart card 1 includes an inboard storage device (not illustrated) in the form of an integrated circuit which is able to store information corresponding to each of the indicia 2-7. When the smart card 1 is inserted into the smart card reader 10, pressing a transparent membrane located above the smart card 1 so as to point to a particular indicium, activates the information in the corresponding portion of the electronic memory and sends a signal to the corresponding computer module 101 (or 201, etc as the case may be).

Initially the vendor has to both load the smart card 1 with the relevant data and also prepare the relevant indicia to appear on the smart card 1. The simplest way of preparation of such indicia is to utilise the printer 115 to print adhesive labels 8 which after printing are adhered to the corresponding smart card 1 as shown in Fig. 1 to produce the smart card 1 as illustrated in Figs. 2 and 3.

In addition, the smart card 1 of Fig. 1 whilst in the card reader 10 has downloaded to it various data to be described hereafter in more detail. Furthermore, the internal memory of the computer module 101 is also loaded with relevant data including images from the camera 117. Naturally the vendor manufactures a large number of such smart



cards 1 which are then distributed, in a first embodiment without charge, one to each of a large number of prospective purchasers.

From the comfort of his own home and at a time of his own choosing, the purchaser can insert the smart card 1 into his card reader 10 and thereby utilise his computer system  
5 200 to determine which events at the stadium he wishes to attend. By pointing at the indicium 2 the user activates data within the smart card 1 which connects his computer 201 via the communications link 216 to the communications link 16 and thus to the vendor's computer 101. As a consequence, data is able to be downloaded to the purchaser's computer 201 which permits a plan of the stadium showing the various seats  
10 and their locations to be displayed on the display 204.

By activating the event indicium 5 the display 214 further indicates the dates and contesting teams of various football matches, for example, and by utilising the scroll indicia 7 a particular event can be selected. As a consequence, the screen 214 then displays information from the computer module 101 as to the seats currently available for  
15 that particular event and the current price of the seats. Similarly, the scroll indicia 7 are able to be manipulated so as to move amongst the various seats and once a particular seat has been selected a view indicium 3 can be activated so as to display video images of the view from that particular seat of, say, a previous football match. In this way, the purchaser has an excellent idea as to the exact nature of the view able to be obtained from  
20 the particular seat.

By activating the "book the seat" indicium 6 and the number of people indicium 4, the purchaser is able to book a number of adjacent seats and conclude the relevant financial transaction. The tickets are able to be paid for using a number of standard payment types for electronic commerce, including but not being limited to, digital cash  
25 stored in electronic memory or credit card payments, for example where credit card details of the purchaser are stored on the purchaser's smart card 1, or on a separate smart card which operates from another terminal.

In an alternative arrangement, rather than the vendor distributing the smart cards 1 gratis, the smart cards 1 can be pre-loaded with a number of seats and/or events and sold to the purchaser prior to the purchaser deciding which of the events he wishes to attend. In this arrangement the selection of the seats and events is substantially the same, however in the transaction the action is the booking of a prepaid seat rather than the booking and payment of a seat.

In a second embodiment illustrated in Fig. 2, a smart card 41 is distributed by a restaurant and contains an indicium 42 which is a plan of the restaurant showing "A" tables on a terrace alongside a river, "B" tables which are non smoking, and "C" tables which are smoking. As before, the purchaser installs the smart card 41 into the card reader 10 of his computer system 200 and by pressing the month, day and time indicia 45 is able to view the available unbooked tables at the restaurant. The number of persons (pax) for which the booking is to be made is entered by means of the pax indicium 44 and the scroll indicia 47. Finally activating the "make the reservation" indicium 46 enables a reservation to be made. In this transaction, the communications link to the restaurant's computer module 101 is made in order to ascertain which seats are available, however no financial transaction takes place until the restaurant is visited and the meal paid for.

The third embodiment is illustrated in Fig. 5 where a tourist agency or cruise ship operator is able to sell tickets to various cruises on a particular vessel. The smart card 51 of this embodiment is preloaded with data in relation to the vessel itself, its amenities, the proposed cruises to be held in the near future and so on. By pressing on the indicium 52 the nature of the accommodation available on "C deck" is displayed. Again pressing the cabin indicia results in a view of the type of cabin being displayed and other information as to amenities such as en suite toilet, bar fridge, etc. Other cruise specific information is also able to be displayed such as the ports of call, any day trips planned for the cruise, the entertainers booked for the cruise, and so on.

By pressing indicium 56 the connection to the vendor's computer 101 is made. This results in display of the available cabins for various cruises by scrolling through the

screen display by means of indicia 57. A selection can then be made. Finally, after selecting a cruise and cabin preference the person is able to book a cabin of a specified type for a specified cruise by pressing the "book cabin" indicia 58. This then leads the purchaser through a series of electronic steps to finalise the booking including a means of electronic payment.

It will be apparent to those skilled in the art that the indicia provided on the smart card can be divided into three groups. The first group of indicia represents the physical area of the building or facility. The second group of indicia provide access to information about a specific portion of the physical area or premises which is time dependent depending upon the intended date or time of the proposed booking. The third indicia specifies the details for booking a ticket and performing the transaction.

It will also be appreciated that the smart card 1, 41, 51 constitutes a customisable portable user interface and in addition to enabling the event to be booked can also constitute a ticket for entrance to the event. This is accomplished by storing in the smart card 1, 41, 51 the booking details finalised via the communication link 16, 216. If the purchaser then takes the smart card to the event and the event venue is itself provided with a smart card reader 10 and associated computer system, entry to the venue can be automatically gained by inserting the smart card 1 into the card reader which then checks the booked details against a master list of all such bookings.

Details of the conventional general purpose computer system 100 are shown in Fig. 6. The ticket booking processes are able to be implemented as software, such as an application program executing within the computer system 100. In particular, the steps of the method are effected by instructions in the software that are carried out by the computer. The software may be divided into two separate parts; one part for carrying out the methods; and another part to manage the user interface between the latter and the user. The software may be stored in a computer readable medium, including the storage devices described below, for example. The software is loaded into the computer from the computer readable medium, and then executed by the computer. A computer readable

medium having such software or computer program recorded on it is a computer program product. The use of the computer program product in the compute preferably effects an advantageous apparatus for carrying out the embodiments of the invention.

The computer system 100 comprises a computer module 101, input devices such as a keyboard 102, mouse 103, and camera 117, output devices including a printer 115 and a display device 114. A Modulator-Demodulator (Modem) transceiver device 116 is used by the computer module 101 for communicating to and from a communications network 120, for example connectable via a telephone line 121 or other functional medium. The modem 116 can be used to obtain access to the Internet, and other network systems, such as a Local Area Network (LAN) or a Wide Area Network (WAN).

The computer module 101 typically includes at least one processor unit 105, a memory unit 106, for example formed from semiconductor random access memory (RAM) and read only memory (ROM), input/output (I/O) interfaces including a video interface 107, and an I/O interface 113 for the keyboard 102, mouse 103, and card reader 10, and an interface 108 for the printer 115, modem 116 and camera 117. A storage device 109 is provided and typically includes a hard disk drive 110 and a floppy disk drive 111. A magnetic tape drive (not illustrated) is also able to be used. A CD-ROM drive 112 is typically provided as a non-volatile source of data. The components 102 to 117 typically communicate via an interconnected bus 104 and in a manner which results in a conventional mode of operation of the computer system 100 known to those in the relevant art. Examples of computers on which the embodiments can be practised include IBM-PCs and compatibles, Sun Sparcstations or alike computer system evolved therefrom.

Typically, the application program of the preferred embodiment is resident on the hard disk drive 110 and read and controlled in its execution by the processor 105. Intermediate storage of the program and any data fetched from the network 120 may be accomplished using the semiconductor memory 106, possibly in concert with the hard disk drive 110. In some instances, the application program will be supplied to the user

encoded on a CD-ROM or floppy disk and read via the corresponding drive 112 or 111, or alternatively may be read by the user from the network 120 via the modem device 116. Still further, the software can also be loaded into the computer system 100 from other computer readable media including magnetic tape, a ROM or integrated circuit, a magneto-optical disk, a radio or infra-red transmission channel between the computer module 101 and another device, a computer readable card such as a smart card, a PCMCIA card, and the Internet and Intranets including email transmissions and information recorded on websites and the like. The foregoing is merely exemplary of relevant computer readable media. Other computer readable media are able to be practised without departing from the scope and spirit of the invention.

The methods of ticket selling are alternatively able to be implemented in dedicated hardware such as one or more integrated circuits performing the functions or sub-functions described above. Such dedicated hardware may include graphic processors, digital signal processors, or one or more microprocessors and associated memories.

15

### **Industrial Applicability**

It is apparent from the above that the embodiment(s) of the invention are applicable to the entertainment, leisure and travel industries.

The foregoing describes only some embodiments of the present invention, and modifications and/or changes can be made thereto without departing from the scope of the invention.

In the context of this specification, the word "comprising" means "including principally but not necessarily solely" or "having" or "including" and not "consisting only of". Variations of the word comprising, such as "comprise" and "comprises" have corresponding meanings.

25

**Claims:**

1. A smart card for electronic ticketing, said smart card comprising:
  - a substrate;
  - an electronic memory located in, or on, said substrate;
  - 5 a first indicium or a first set of indicia on said substrate representing a venue to which tickets are to be sold;
  - a first data cache stored in said memory and representing displayable information regarding said venue;
  - a second indicium or a second set of indicia on said substrate representing time
  - 10 varying booking information;
  - a second data cache stored in said memory and pointing to a remote location at which current values of said booking information are stored;
  - a third indicium or a third set of indicia on said substrate representing a booking transaction; and
  - 15 a third data cache stored in said memory and comprising transaction enabling data.
2. The smart card as claimed in claim 1 wherein said displayable information regarding said venue includes a plan of a physical layout of said venue.
3. The smart card as claimed in claim 2 wherein said first indicium or said first set of indicia includes a representation of said plan.
- 20 4. The smart card as claimed in any one of claims 1-3 wherein said transaction enabling data is in respect of a payment made at the time of booking.
5. The smart card as claimed in any one of claims 1-3 wherein said transaction enabling data is in respect of booking a pre-paid ticket.
6. The smart card as claimed in any one of claims 1-5 wherein said second data
- 25 cache comprises an internet address of a vendor supplying said smart card.
7. The smart card as claimed in any one of claims 1-6 wherein said electronic memory contains details of said booking transaction and said smart card is transportable

to said venue and said booking transaction is readable at said venue to permit access thereto by the bearer of said smart card.

8. A system for smart card electronic ticketing, said system comprising:  
a smart card as defined in claim 1;

5 a vendor computer having a base memory in which is stored booking information regarding said venue to which tickets are sold by a vendor, updating means to update said booking information during the progress of sales, and a vendor communications link; and  
a purchaser computer having a display, a smart card reader, and a purchaser communications link which can communicate with said vendor communication link.

10 9. The system as claimed in claim 8 wherein said vendor computer includes a printer means for creating said indicia on said substrate.

10. The system as claimed in claim 9 wherein said printer means prints adhesive labels which are subsequently adhered to said substrate.

11. The system as claimed in any one of claims 8-10 wherein said vendor  
15 computer includes image capturing means and said booking information includes at least one image of that portion of said venue available to be booked.

12. The system as claimed in claim 11 wherein said image capturing means is a video camera and said booking information includes video images.

13. The system as claimed in any one of claims 8-12 including a smart card  
20 reader located at said venue and operable to determine access thereto.

14. A method for smart card electronic ticketing, said method comprising the steps of:

a vendor preparing at least one smart card as claimed in claim 1;

distributing to a purchaser one of said smart cards;

25 said vendor and purchaser together forming the system as claimed in claim 8;

said purchaser entering said smart card into the card reader of said purchaser computer and activating said first indicium or set of indicia to thereby display on said purchaser display a representation of said venue;

said purchaser activating said second indicium or said second set of indicia to have said purchaser computer call and download from said vendor computer over said communications link current booking information regarding said venue and display same on said purchaser display; and

5        said purchaser activating said third indicium or said third set of indicia to electronically conclude a ticket booking transaction with said vendor, update the booking information in said base memory, and store the transacted ticket information in said smart card electronic memory.

10        15. The method as claimed in claim 14 including the further step of said vendor distributing each said smart cards to a corresponding purchaser without charge and said electronic ticket selling transaction including payment from said purchaser to said vendor.

16. The method as claimed in claim 14 including the further step of said vendor distributing each said smart card to a corresponding purchaser with a charge and said electronic ticket selling transaction comprising booking a pre-paid ticket.

15        17. The method as claimed in any one of claims 14-16 including the further step of utilising the transacted ticket information stored in said card to permit access to said venue.

DATED this Twenty-ninth Day of September, 1999

20        **Canon Kabushiki Kaisha**

Patent Attorneys for the Applicant

SPRUSON & FERGUSON



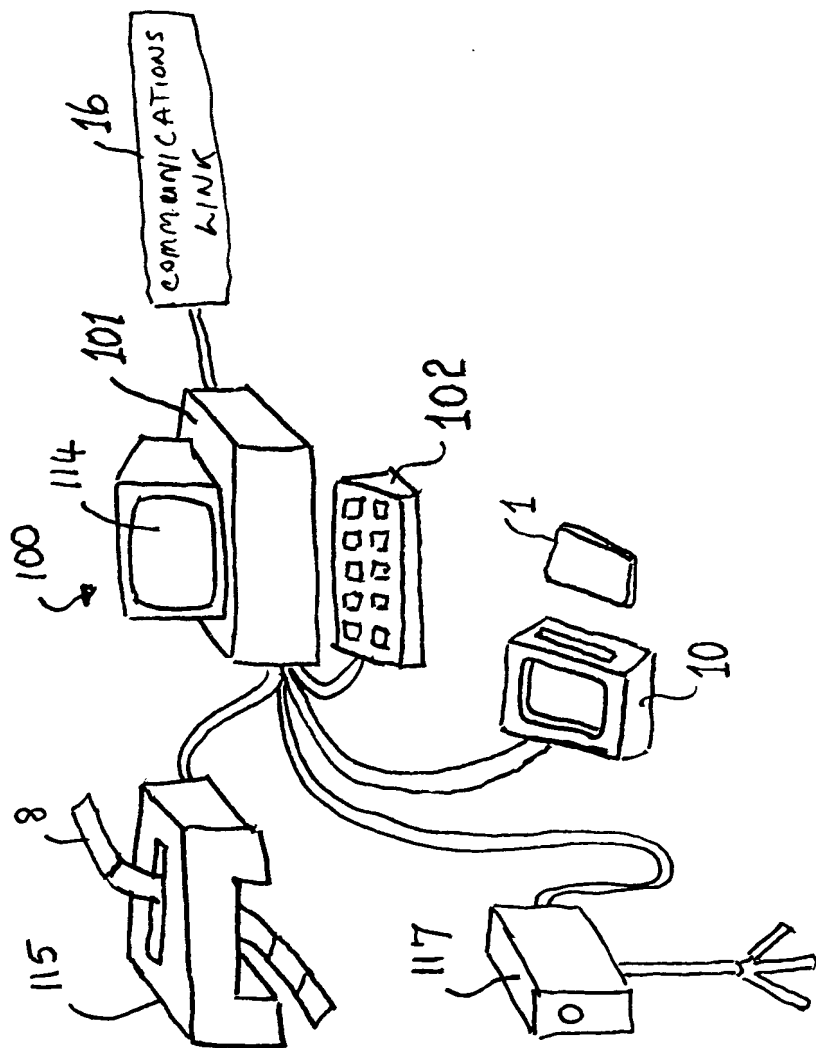


FIG. 1

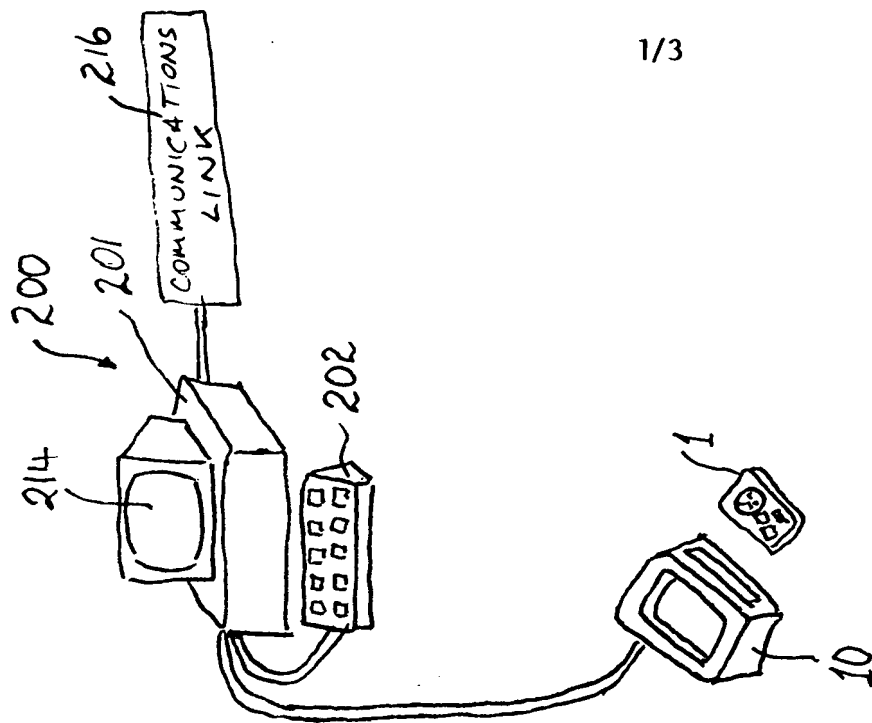


FIG. 2

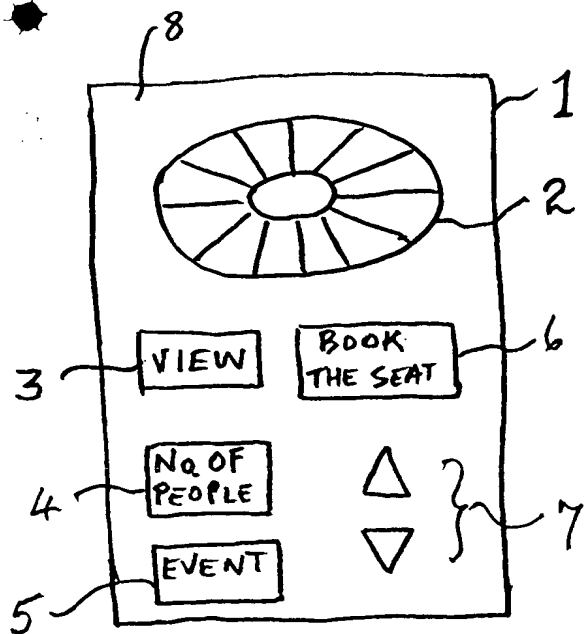


FIG. 3

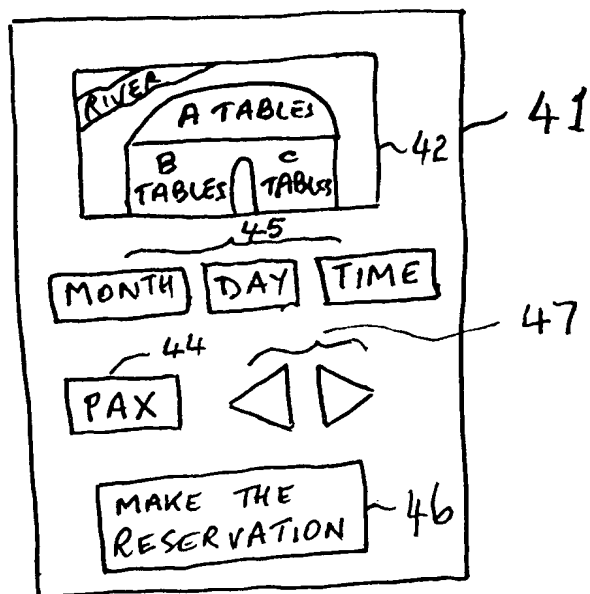


FIG. 4

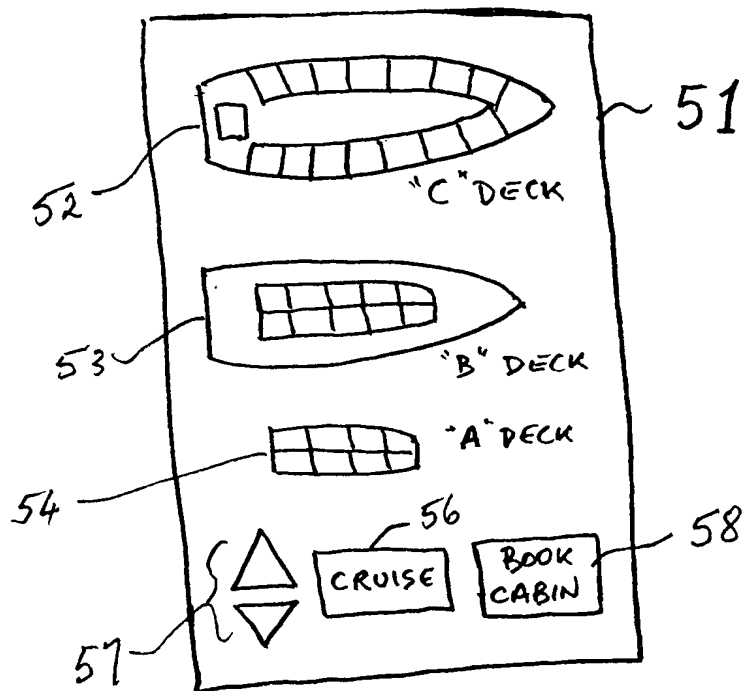
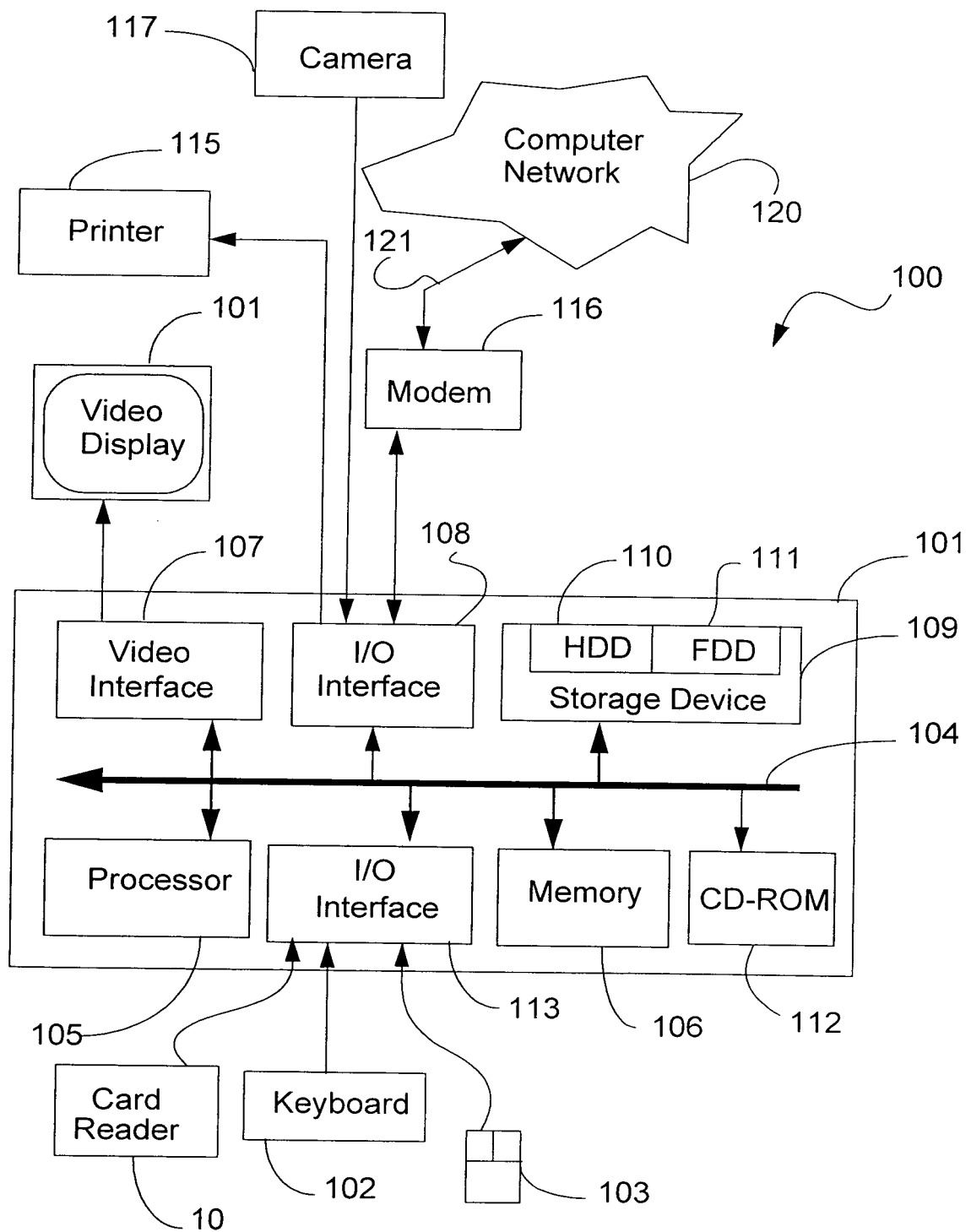


FIG. 5

**FIG. 6**